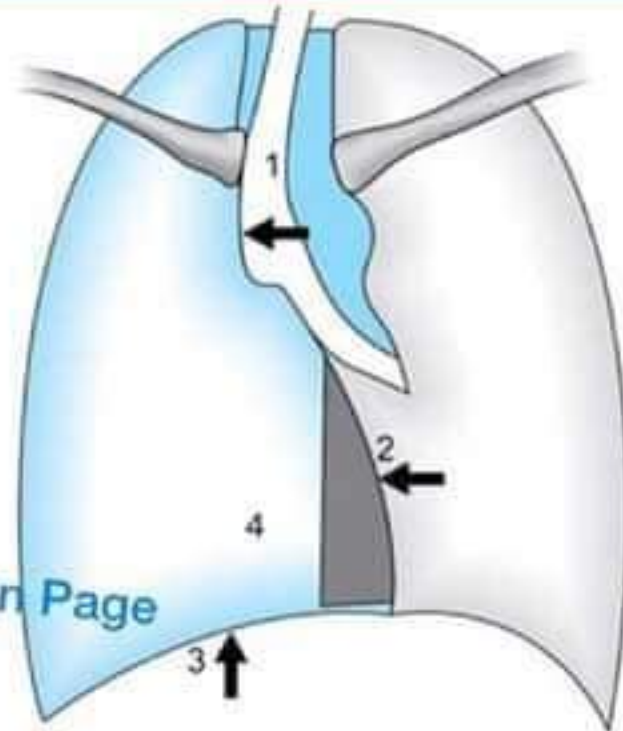


Massive Lung Collapse



Chest X-ray PA view erect
Homogenous opacity right side thorax
No bronchovascular marking in right
No air bronchogram
Tracheal shift to right
Cardiac (mediastinal) shift to right
Crowding of ribs right
Right diaphragm dome and
Right cardiac border obscured



Signs of pull—same side
Right lung collapse

1. Tracheal shift to right side—arrow
 2. Cardiac shift to right side—arrow
 3. Loss of right dome diaphragm outline—arrow
 4. Loss of right heart border outline
- Massive total collapse right side

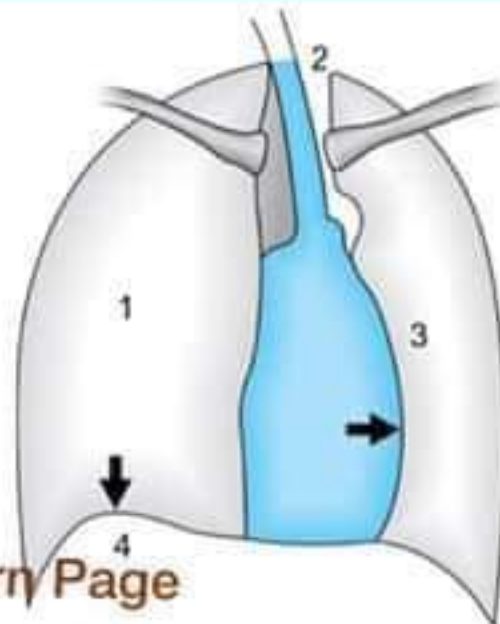
Fig. 3.2: Chest X-ray showing massive lung collapse

Massive Pleural Effusion



Chest X-ray PA view erect

Opacity right hemithorax
Right diaphragm dome obscured
Right cardiac border obscured
No air bronchogram/bronchovascular markings
Signs of push—mediastinal shift to left tracheal shift to left
widened, i.e. spaces
Increased thoracic volume right side



Signs of push-opposite side

1. Opacity right hemithorax
 2. Tracheal shift to left side
 3. Mediastinal shift to left-black arrow
 4. Right diaphragm dome obscured-black arrow
 5. Right cardiac border obscured
- Right massive pleural effusion in tension

Fig. 3.1: Chest X-ray showing massive pleural effusion

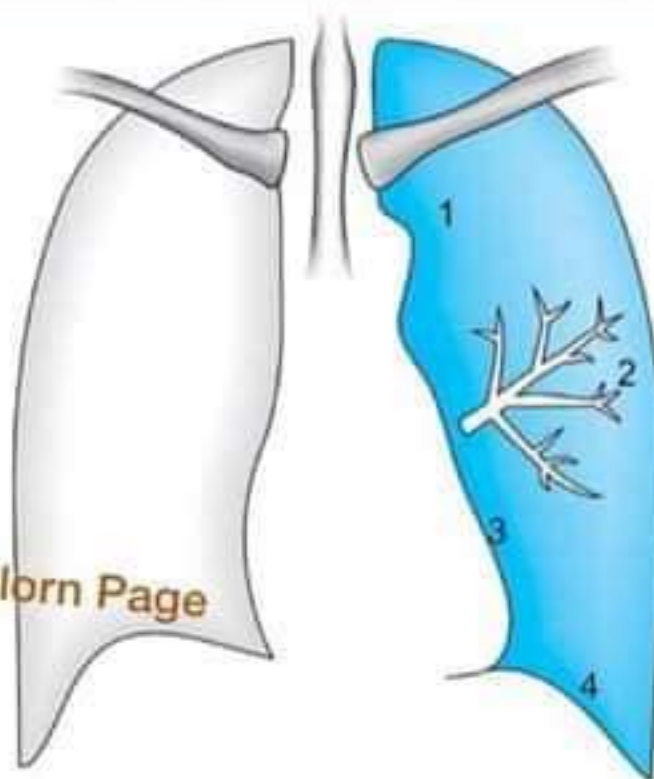
Massive Consolidation



Chest X-ray PA view erect
Homogenous opacity left side thorax

No volume loss

1. Air bronchogram
2. Loss of left heart border silhouette
3. Left dome diaphragm well seen
4. No evidence of push/pull
5. Normal CP angles



No signs of push/pull

1. Homogenous opacity left side thorax
 2. Classic airbronchogram
 3. Loss of left heart border silhouette
 4. Left diaphragm dome well seen
- Consolidation left lung upper lobe including lingular segment

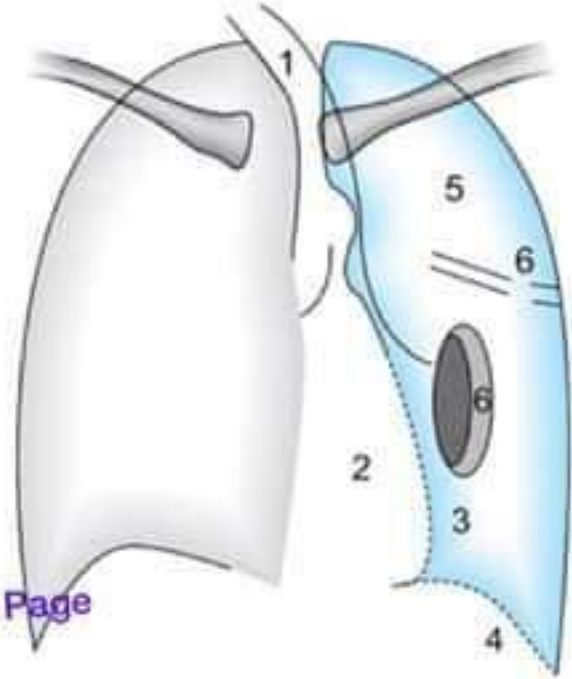
Fig. 3.3: Chest X-ray showing massive consolidation

Post-pneumonectomy (Fig. 3.4)



Left side post-pneumonectomy

Evidence of rib resection left side
Opacity left side thorax
Reduced left side thoracic volume
Marked signs of pull
tracheal shift to left
mediastinal shift to left
crowding of left side ribs
left heart border obscured
left diaphragm dome obscured



Signs of pull

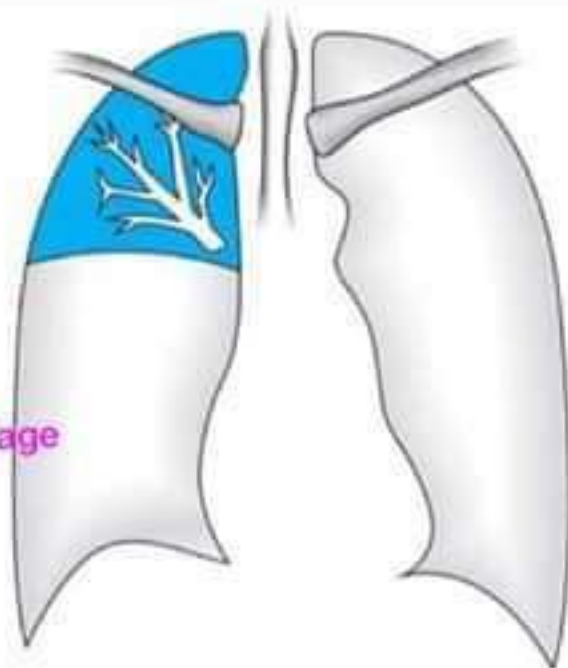
1. Tracheal shift to left side
 2. Mediastinal shift to left
 3. Left heart border obscured
 4. Left diaphragm dome obscured
 5. Opacity left hemithorax
 6. Air trapped postoperative complication
 7. Rib resection-evidence of surgery
- S/P post-pneumonectomy left lung

Fig. 3.4: Chest X-ray showing post-pneumonectomy changes

Upper Lobe Consolidation (Fig. 3.6)



MD Sun Bunlorn Page



Consolidation right upper lobe

Opacity right upper zone with air bronchogram

Right heart border and right diaphragm dome well seen

No loss of lung volume

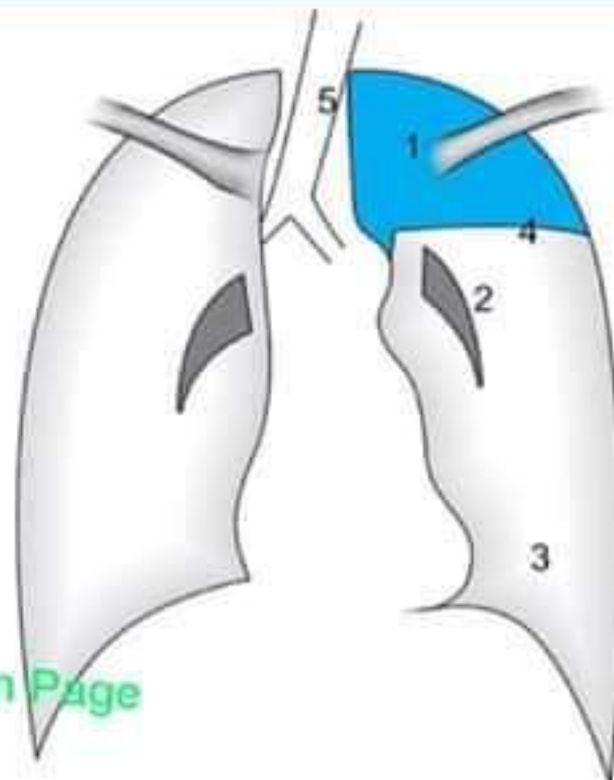
No signs of pull/push

Fig. 3.6: Chest X-ray showing upper lobe consolidation



Left upper lobar collapse

Opacity in left upper lobe region
 Faint air bronchogram seen in that opacity
 Reduction in lung volume signs of pull
 Mediastinal shift to left (trachea and heart)
 Left hilum abnormally high up
 Left diaphragm dome pulled up, loss of normal doming
 Crowding of ribs in left upper zone
 Left lower zone vasculature is distorted



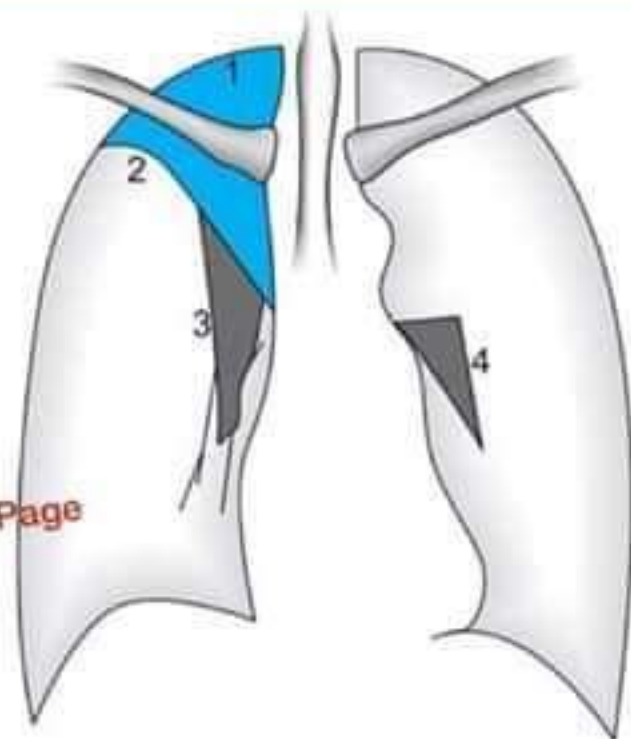
1. Opacity left upper zone
 2. Left hilum pulled up
 3. Left diaphragm dome pulled up (tenting)
 4. Crowded ribs
 5. Tracheal shift
- Signs of local pull, reduction in focal lung volume

Fig. 3.7: Lobar collapse—left upper lobe



Right upper lobe collapse

There is a triangular opacity in right upper lobe.
The minor fissure and right hilum are markedly pulled up.
Note the crowding of ribs in right upper zone.



1. Collapsed right upper lobe signs of pull due to reduction in lung volume
2. Minor fissure pulled up
3. Right hilum pulled up
4. Normal left hilum

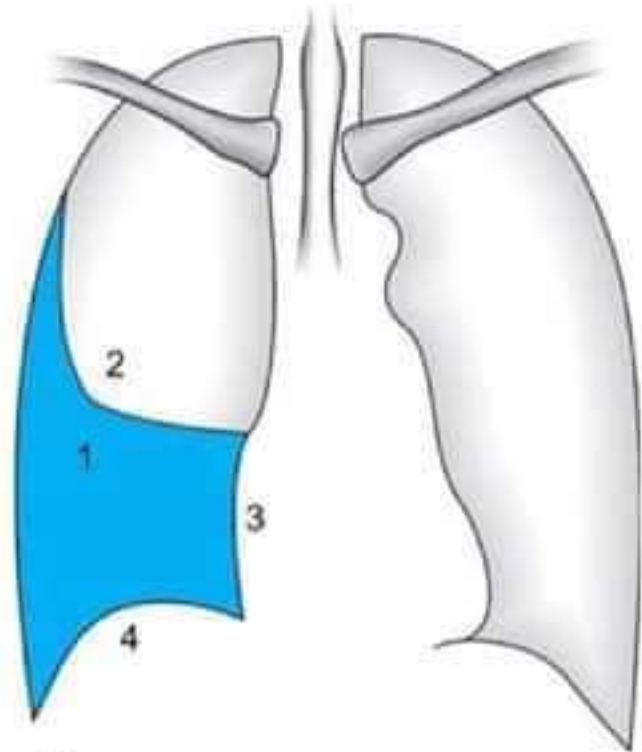
Fig. 3.8: Lobar collapse—right upper lobe

Pleural Effusion



Chest X-ray PA view erect

- Opacity right lower zone
- Opacity centered at right CP angle the opacity has concave upper border
- Opacity extends along right costal pleura
- Right diaphragm dome obscured
- Right cardiac border obscured
- No air bronchogram
- No signs of pull/push



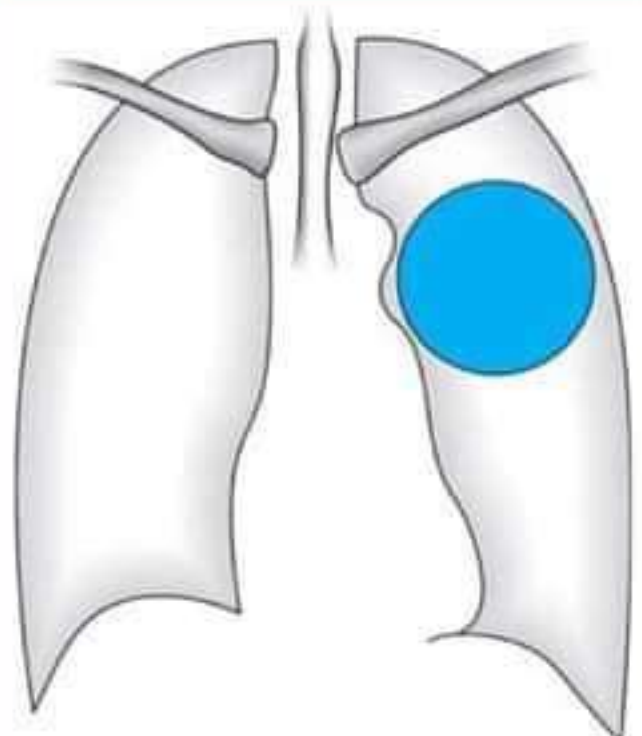
Line diagram

- 1. Opacity right lower zone
 - 2. The opacity has concave upper border
 - 3. Right cardiac border obscured
 - 4. Right diaphragm dome obscured
- Moderate right pleural effusion

Fig. 3.12: Chest X-ray showing right pleural effusion



A well defined oval shaped mass lesion in left parahilar region, mass has well-defined borders. Since the hilum is seen through the mass, the mass is not in plane with the hilum (Hilum overlay sign). The mass is abutting the left main bronchus. Since the posterior ribs do not show any erosion, the mass in this patient is anteriorly placed



A well-defined mass lesion in left lung midzone-Blue mass

Fig. 3.13: Chest X-ray showing a mass lesion



Superior sulcus

Tumour/Pancoast tumor

1. Right apical mass
2. Soft tissue extension
3. Paralysed right dome

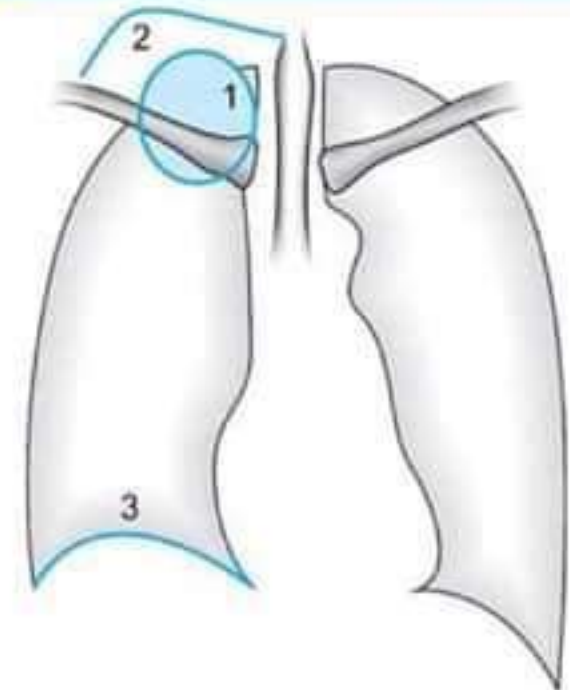


Fig. 3.14: Chest X-ray lung mass showing pancoast tumor

Tuberculoma

This is the most common bacterial infection that can produce a SPN. The X-ray features are round or oval, sharply circumscribed nodule. They are often small, widespread and punctate.



There is a well defined single lesion, located in the right upper zone.

Since the mass lesion did not change its morphology-site, size, shape, etc. compared to the previous X-rays the lesion is more likely to be a benign one.

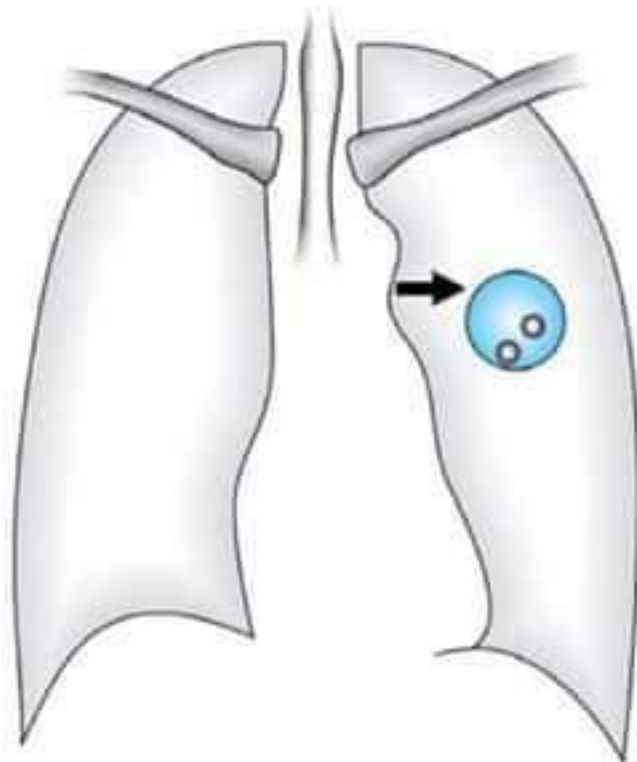


The single lesion is located in right upper zone. The tumour doubling time was more than two years, hence it is likely to be benign.

Fig. 3.17: Chest X-ray showing solitary pulmonary nodule (SPN)



There is a well defined round lesion in left midzone.
The lesion shows flecks of calcific foci.
The two small white arrows point to the well defined borders with no evidence of malignancy.

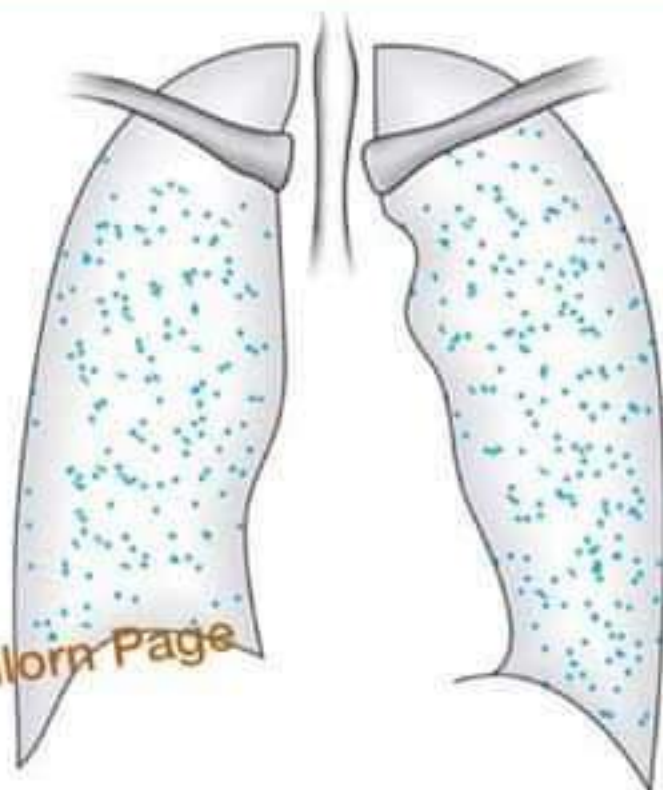


Tuberculoma is the most common cause of a solitary calcified pulmonary lesion in our country.

Fig. 3.18: Chest X-ray showing tuberculoma in lung



Multiple tiny spots distributed throughout the lung fields with the appearance similar to millet seeds. Note the normal background lungs, hila.

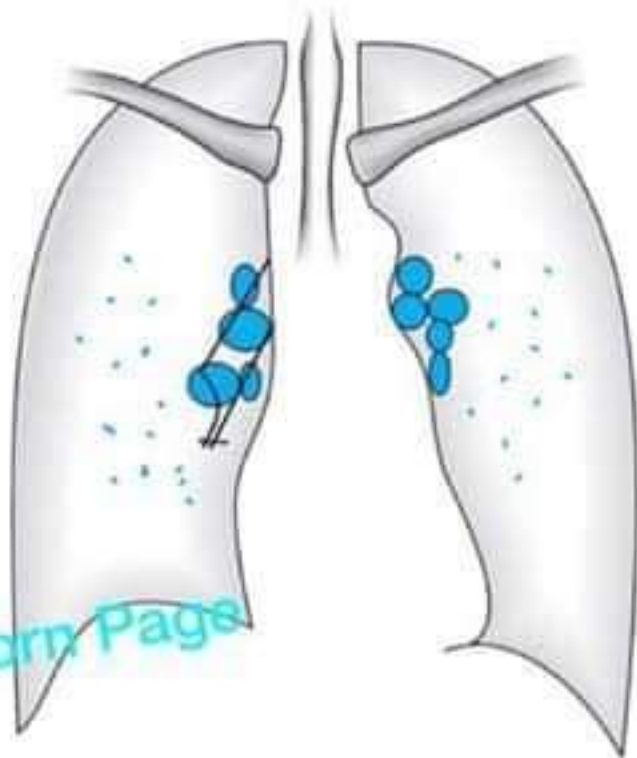


Multiple tiny spots distributed throughout the lung fields with the appearance similar to millet seeds. No evidence of loss or increase in lung volume.

Fig. 3.19: Chest X-ray showing multiple tiny nodules

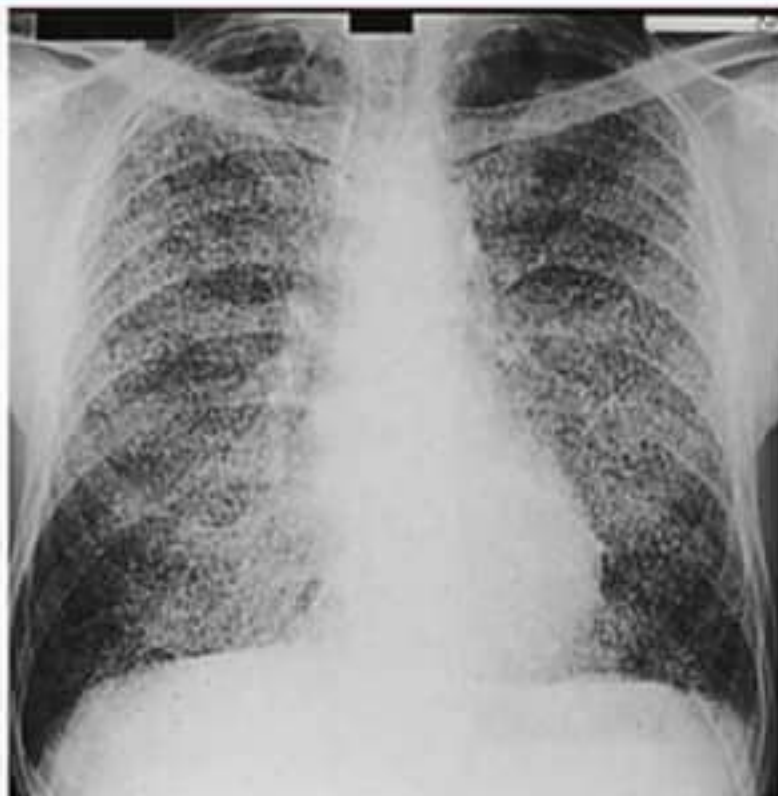


Chest X-ray shows bilateral hilar lymphadenopathy with calcification. There is an evidence of small calcific foci in the lung zones also

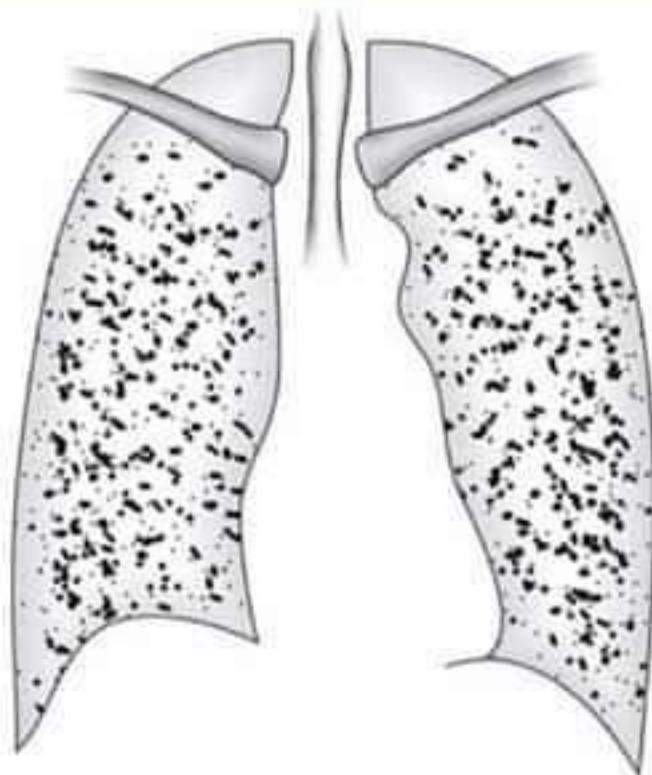


Diffuse mediastinal calcified lymphadenopathy, in our country, is always due to tuberculosis

Fig. 3.23: Chest X-ray showing tuberculous lymphadenopathy



Chest X-ray showing multiple bright nodules scattered throughout the lung zones. Almost uniformly. The lesions are too bright and too large for them to be called miliary tuberculosis. This is a case of pneumoconiosis.



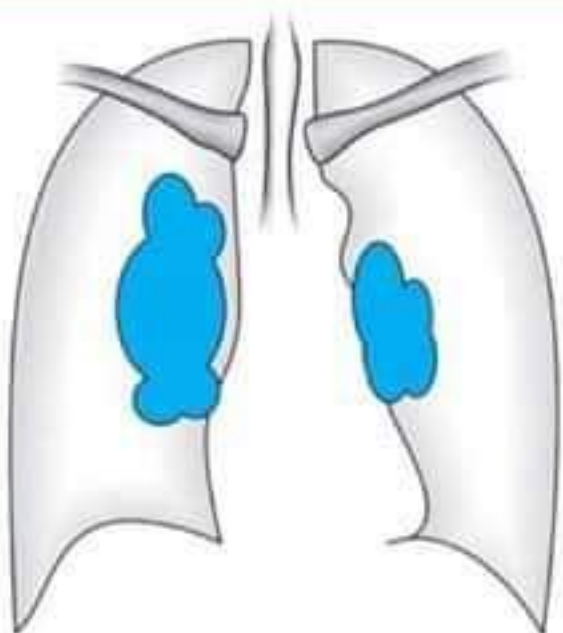
Line diagram showing multiple very dense nodular shadows scattered diffusely, that is, involving all the five lobes of lung. Further the nodules do not show the same size.

Fig. 3.20: Chest X-ray showing multiple tiny nodules—a case of pneumoconiosis



The chest X-ray shows the classic 1, 2, 3 sign of sarcoidosis

- 1-Right hilar lymphadenopathy
- 2-Left hilar lymphadenopathy
- 3-Right paratracheal lymphadenopathy



Note the lumpy, knobby bilateral mediastinal lymphadenopathy.

Pleura is not involved in sarcoidosis, differentiating other causes of lymphadenopathy.

Fig. 3.24: Chest X-ray showing 1,2,3 sign of sarcoidosis

Causes of Kerley Lines

- Pulmonary edema
- Infections (viral, mycoplasma)
- Mitral valve disease
- Interstitial pulmonary fibrosis
- Congenital heart disease
- Alveolar cell carcinoma
- Pulmonary venous occlusive disease
- Lymphoma idiopathic (in the elderly)
- Pneumoconiosis
- Lymphangiectasia

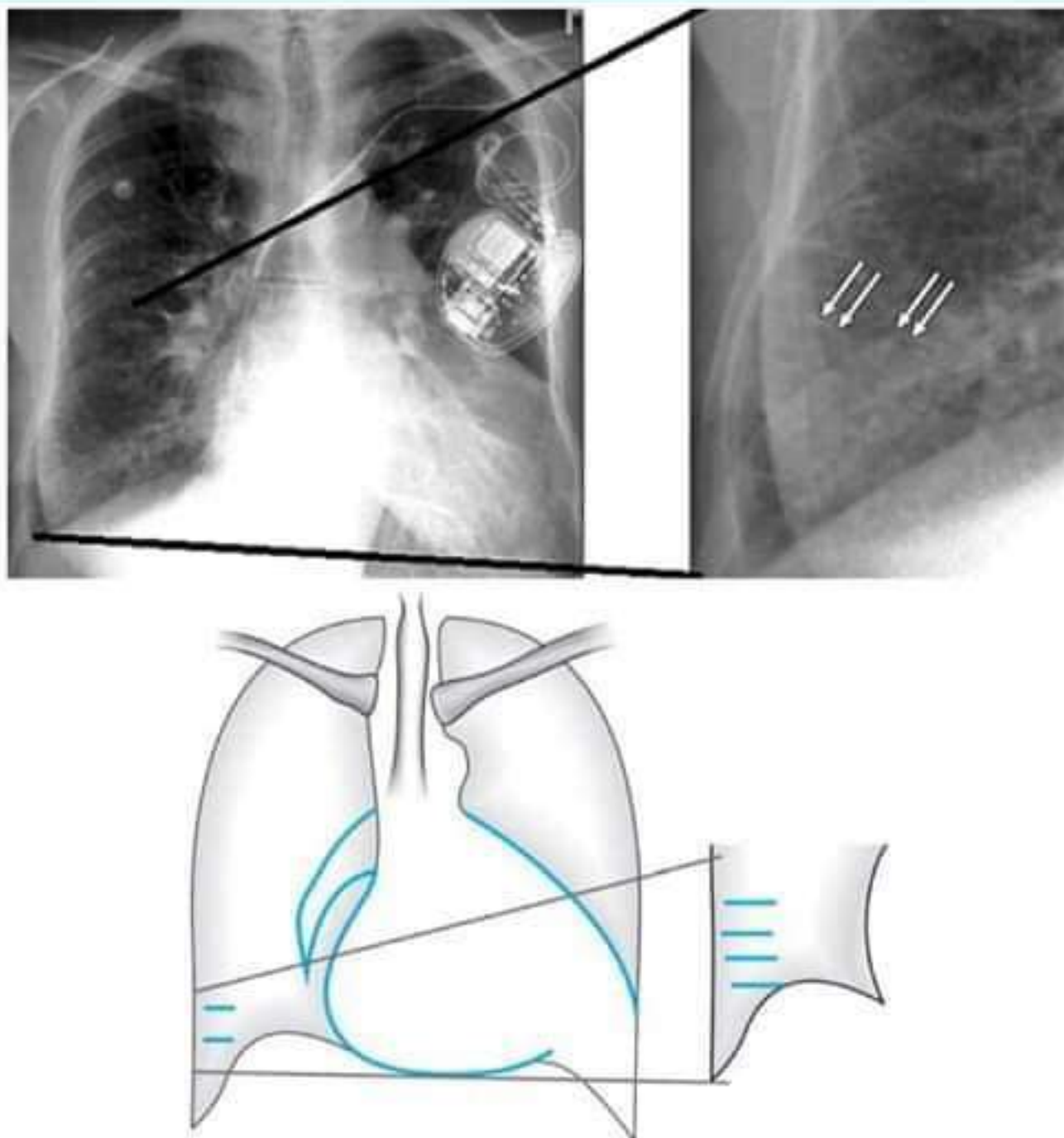
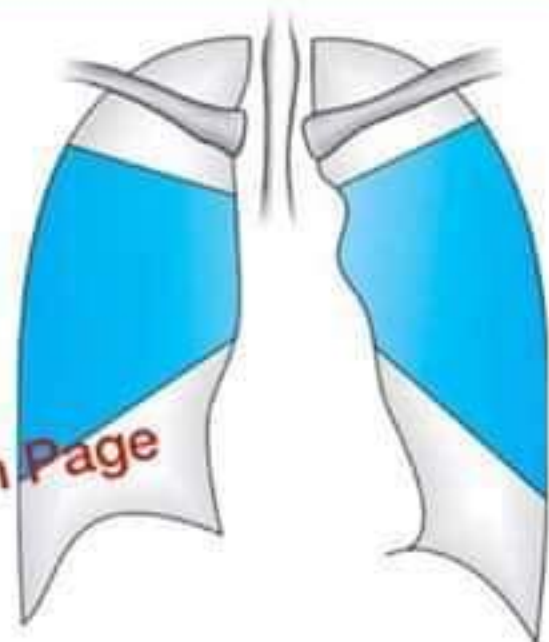


Fig. 3.27: Chest X-ray showing typical Kerley B lines. Note: The parallel transverse lines (arrow) perpendicular to pleural surface. The Kerley B lines are due to left ventricular failure in this case



Chest X-ray showing butterfly wing shaped pulmonary edema in a case of drowning. The opacity is in mid zone, bilateral with air bronchogram.



Note the normal sized heart with no evidence of pulmonary hypertension.

Fig. 3.28: Chest X-ray showing typical batwing opacity in pulmonary edema



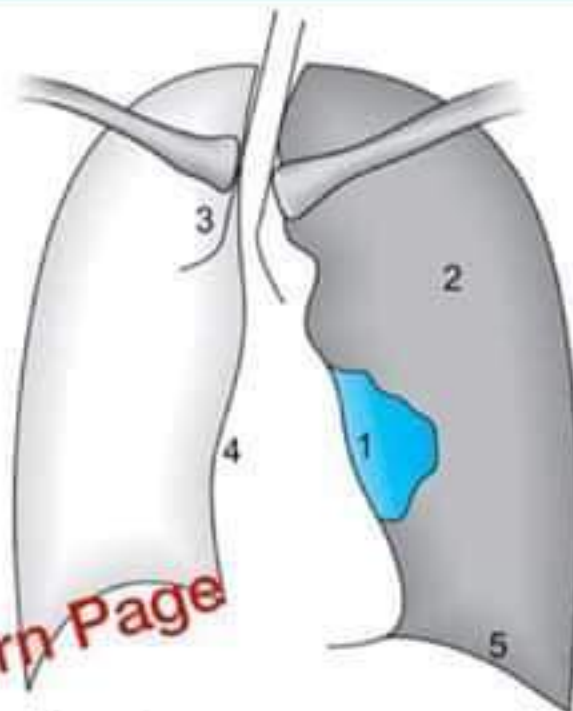
Chest X-ray PA view

Left side tension pneumothorax

Signs of push to right

Trachea and mediastinum are pushed to right side

Note the density difference between two sides, right side normal, left side hyperlucent



Signs of push

1. Collapsed left lung
2. Air under tension in left pleural cavity
No bronchovascular markings
3. Tracheal shift to right side
4. Mediastinal shift to right side

Tension pneumothorax left side

Fig. 3.29: Chest X-ray showing tension pneumothorax



Chest X-ray PA (erect) view

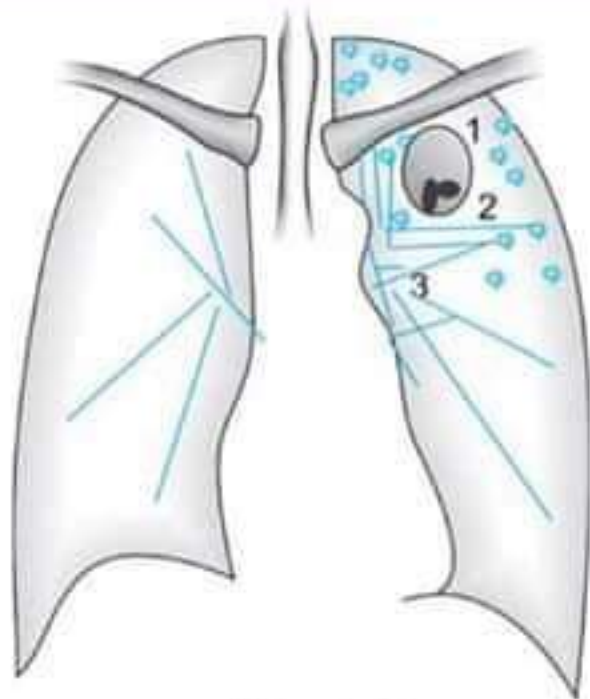
Note a large cavity in left lung upper zone.

The lumen contains a fungal ball

The walls are thick, irregular

Evidence of fibrosis (signs of pull) in upper lobe is seen

Fibrous-cavernous tuberculosis



Fibrous cavernous tuberculosis

1. Cavity with a fungal ball

2. Thick walled cavity

3. Fibrotic fibrous-cavernous tuberculosis

strands showing signs of focal pull

- left hilum pulled up

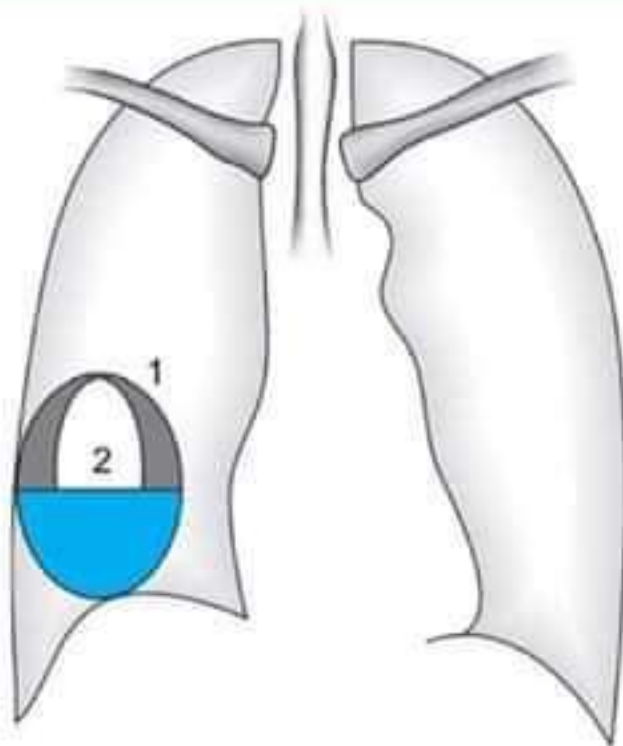
- crowding of ribs

Fig. 3.32: Chest X-ray showing cavitation



Chest X-ray in erect PA view

There is a large cavity with a horizontal fluid level indicating infected cavity
The cavity is located in the right lower zone



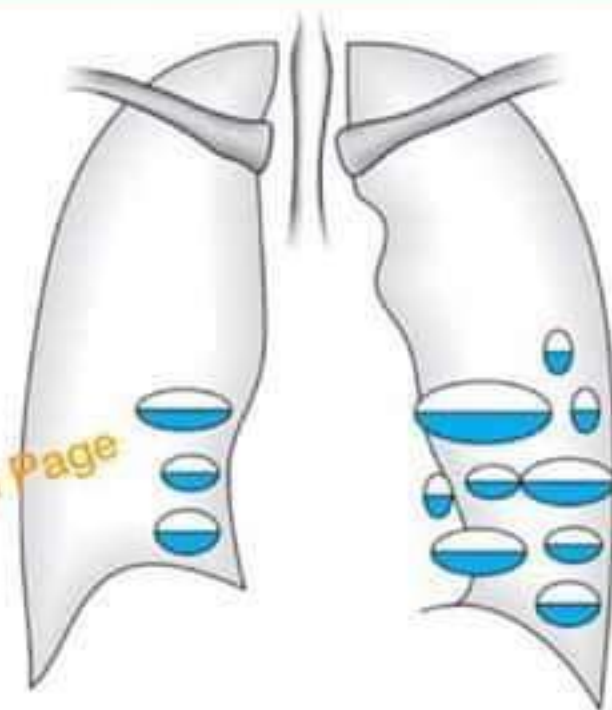
Lung abscess

1. Thick walled cavity
2. Air/fluid level indicating abscess formation.

Fig. 3.33: Chest X-ray showing lung abscess



Chest X-ray in erect PA view. Multiple cystic spaces with air-fluid level Involving the entire left lower lobe lingular segment and right middle lobe. Note both the cardiac borders are obscured (silhouette sign) bilateral cystic bronchiectasis secondarily infected.



Bilateral cystic bronchiectasis secondarily infected. Bilateral basal segments cystic bronchiectasis with multiple air-fluid levels within the bronchiectatic cavities.

Fig. 3.36: Chest X-ray showing bronchiectasis